Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Nervous System Questions

1. When a neuron is at its resting potential

A. the inside of the cell is positively charged relative to the outside.

B. sodium-potassium pumps transport sodium ions into the cell.

C. gated sodium channels are open.

D. sodium-potassium pumps transport both sodium and potassium ions out of the cell.

E. there are more potassium ions inside the neuron than outside.

2. Which of the following events is the first to occur during an action potential?

A. Sodium ions flow into the neuron, making the inside of the neuron positively charged relative to the outside.

B. Sodium channels close.

C. Potassium ions flow out of the neuron.

D. Potassium channels open.

E. Sodium channels open.

3. Sodium-potassium pumps

A. restore the distribution of ions inside and outside a neuron's membrane following an action potential.

B. are open all the time, allowing potassium ions to leave the cell.

C. move both sodium and potassium ions into the cell.

D. do not require energy from ATP.

E. move only sodium ions into the cell.

4. During an action potential

A. potassium ions move into the neuron.

B. potassium channels open first, followed by sodium channels.

C. the inside of the neuron becomes negatively charged relative to the outside.

D. sodium ions move into the neuron, then potassium ions move in.

E. the inside of the neuron becomes positively charged relative to the outside.

5. What causes an action potential to be conducted along a neuron's axon?

A. The change in charge difference across the membrane spreads from open potassium channels, causing sodium channels farther along the axon to open.

B. The axon returns to its resting potential.

C. The change in charge difference across the membrane spreads from open sodium channels, causing sodium channels farther along the axon to open.

D. The change in charge difference across the membrane spreads from open potassium channels, causing potassium channels farther along the axon to open.

E. The change in charge difference across the membrane spreads from open sodium channels, causing the sodium-potassium pumps to move ions across the neuron's membrane.

6. The small space between the sending neuron and the receiving neuron is the

A. neurotransmitter. B. synaptic terminal. C. calcium channel.

D. vesicle. E. synaptic cleft.

7. A molecule that carries information across a synaptic cleft is a

A. neurotransmitter.

B. synaptic cleft.

C. synapse.

D. sending neuron.

E. receiving neuron.

8. When calcium ions enter the synaptic terminal,

A. the inside of the receiving neuron becomes more positive.

B. they cause an action potential in the sending neuron.

C. neurotransmitter molecules are quickly removed from the synaptic cleft.

D. they cause vesicles containing neurotransmitter molecules to fuse to the plasma membrane of the sending neuron.

E. the inside of the receiving neuron becomes more negative.

9. When neurotransmitter molecules bind to receptors in the plasma membrane of the receiving neuron,

A. the receiving neuron becomes more positive inside.

B. ion channels in the plasma membrane of the receiving neuron open.

C. the receiving neuron becomes more negative inside.

D. vesicles in the synaptic terminal fuse to the plasma membrane of the sending neuron.

E. ion channels in the plasma membrane of the sending neuron open.

10. If a signal from a sending neuron makes the receiving neuron more negative inside,

A. the receiving neuron is less likely to generate an action potential.

B. the sending neuron becomes more negative inside.

C. the receiving neuron immediately generates an action potential.

D. the receiving neuron is more likely to generate an action potential.

E. the sending neuron becomes more positive inside.